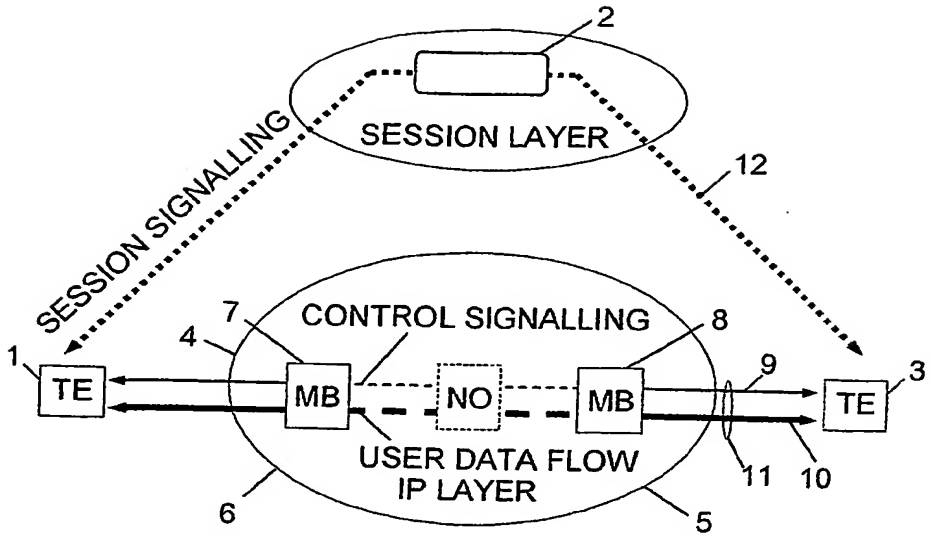
2
SESSION LAYER
SESSION SIGNALLING
12
CONTROL SIGNALLING
7
4
8
1
TE
MB
NO
MB
9
TE
3
USER DATA FLOW
IP LAYER
11
10
6
5

FIG 1

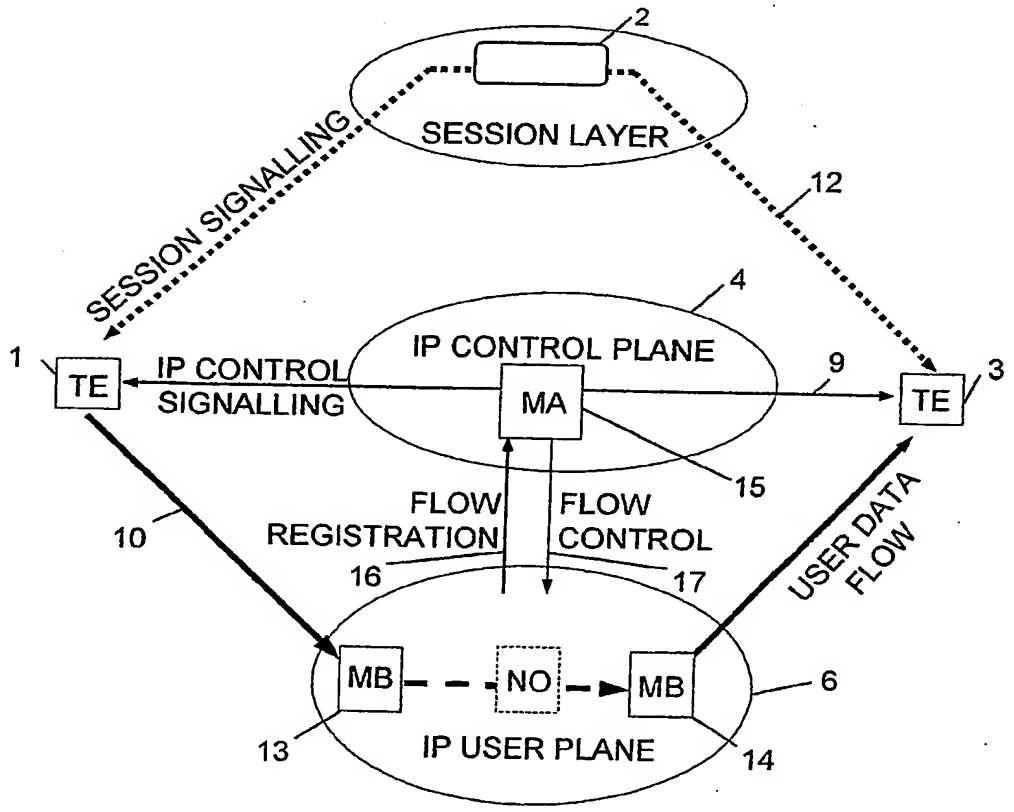
2
SESSION LAYER
SESSION SIGNALLING
12
4
IP CONTROL PLANE
1
TE
IP CONTROL
SIGNALLING
MA
9
TE
3
15
FLOW
REGISTRATION
FLOW
CONTROL
10
16
17
USER DATA
FLOW
MB
NO
MB
6
13
IP USER PLANE
14

FIG 2

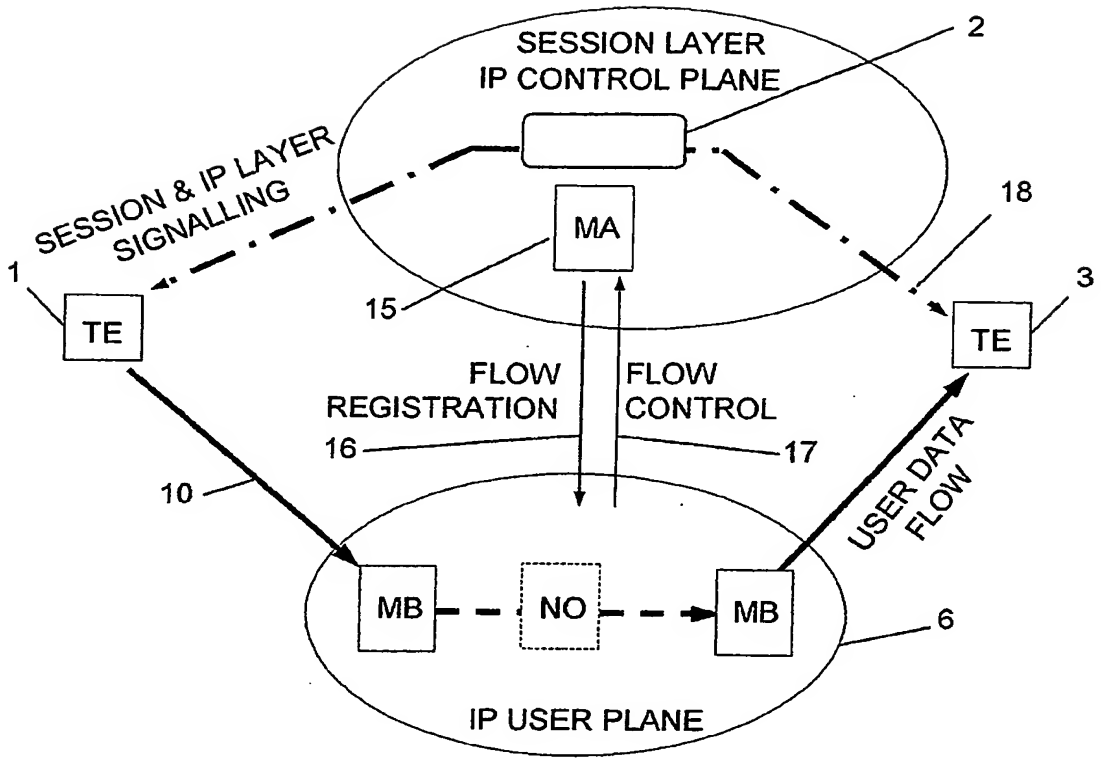
SESSION LAYER
IP CONTROL PLANE
2
SESSION & IP LAYER
SIGNALLING
MA
18
1
15
3
TE
TE
FLOW
REGISTRATION
FLOW
CONTROL
16
17
10
USER DATA
FLOW
MB
NO
MB
6
IP USER PLANE

FIG 3

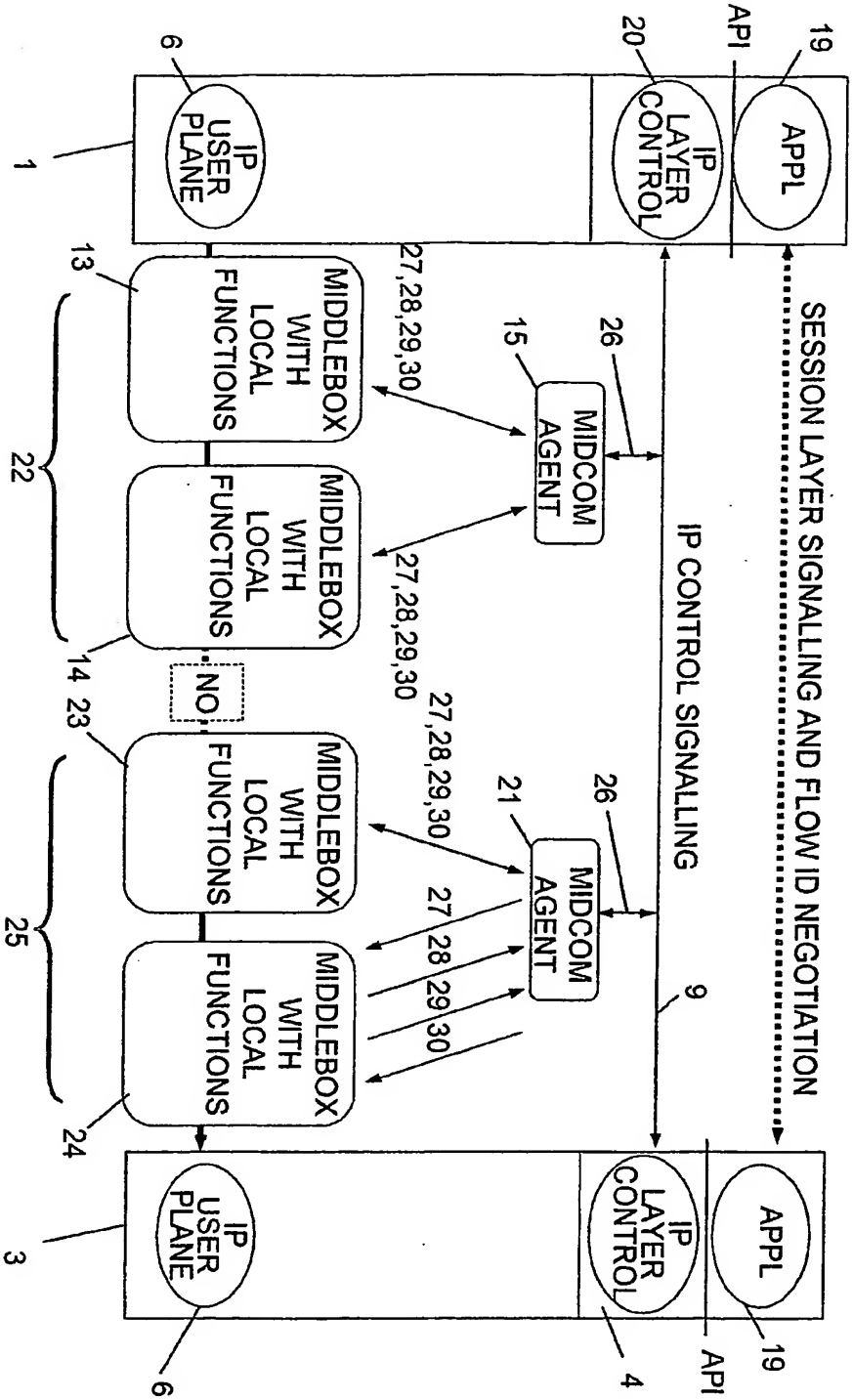
A
B
APPL
IP LAYER CONTROL
IP USER PLANE
API
SESSION LAYER SIGNALLING AND FLOW ID NEGOTIATION
IP CONTROL SIGNALLING
MIDDLEBOX WITH LOCAL FUNCTIONS
MIDCOM AGENT
NO
1
3
4
6
9
13
14
15
19
20
21
22
23
24
25
26
27,28,29,30
27
28
29
30

FIG 4

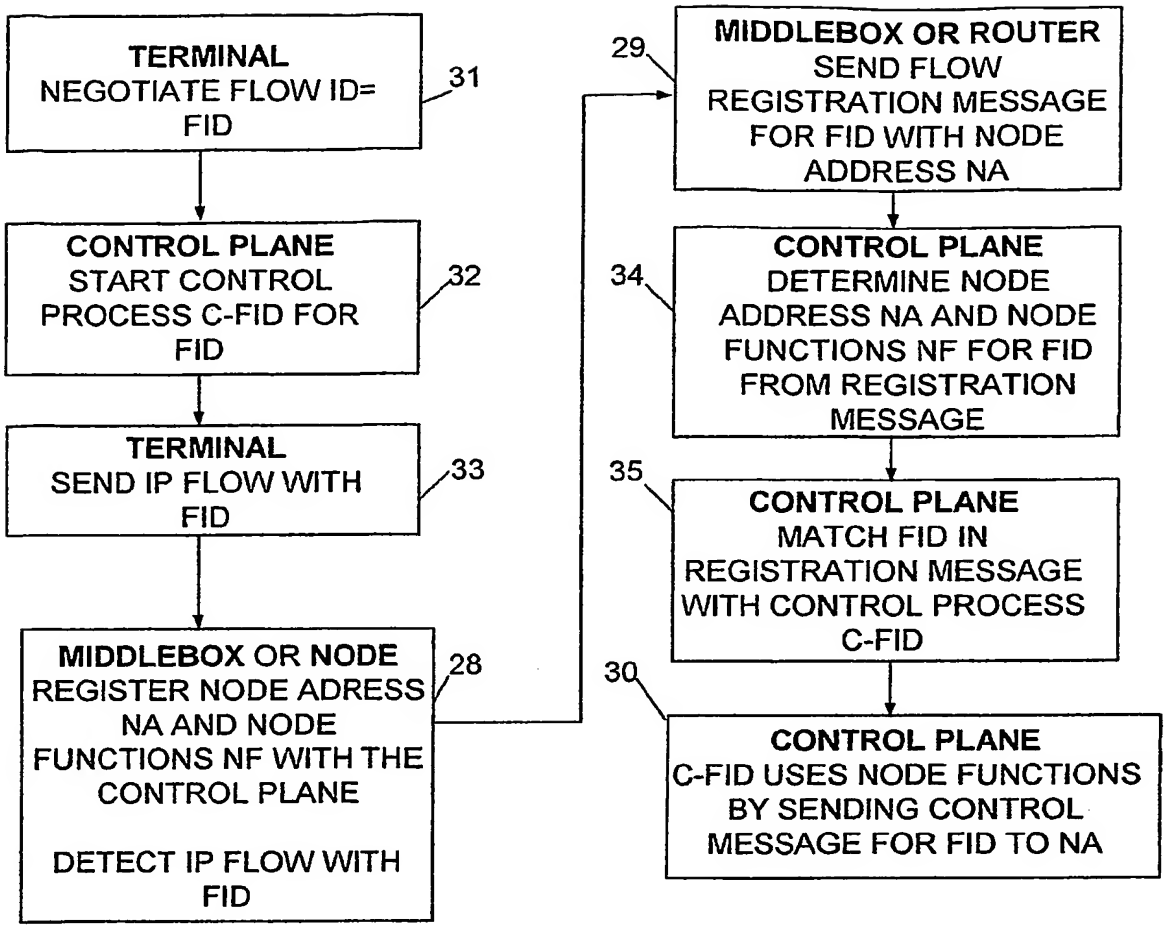
TERMINAL
NEGOTIATE FLOW ID= FID
31
CONTROL PLANE
START CONTROL PROCESS C-FID FOR FID
32
TERMINAL
SEND IP FLOW WITH FID
33
MIDDLEBOX OR NODE
REGISTER NODE ADRESS NA AND NODE FUNCTIONS NF WITH THE CONTROL PLANE
DETECT IP FLOW WITH FID
28
29
MIDDLEBOX OR ROUTER
SEND FLOW REGISTRATION MESSAGE FOR FID WITH NODE ADDRESS NA
34
CONTROL PLANE
DETERMINE NODE ADDRESS NA AND NODE FUNCTIONS NF FOR FID FROM REGISTRATION MESSAGE
35
CONTROL PLANE
MATCH FID IN REGISTRATION MESSAGE WITH CONTROL PROCESS C-FID
30
CONTROL PLANE
C-FID USES NODE FUNCTIONS BY SENDING CONTROL MESSAGE FOR FID TO NA

FIG 5

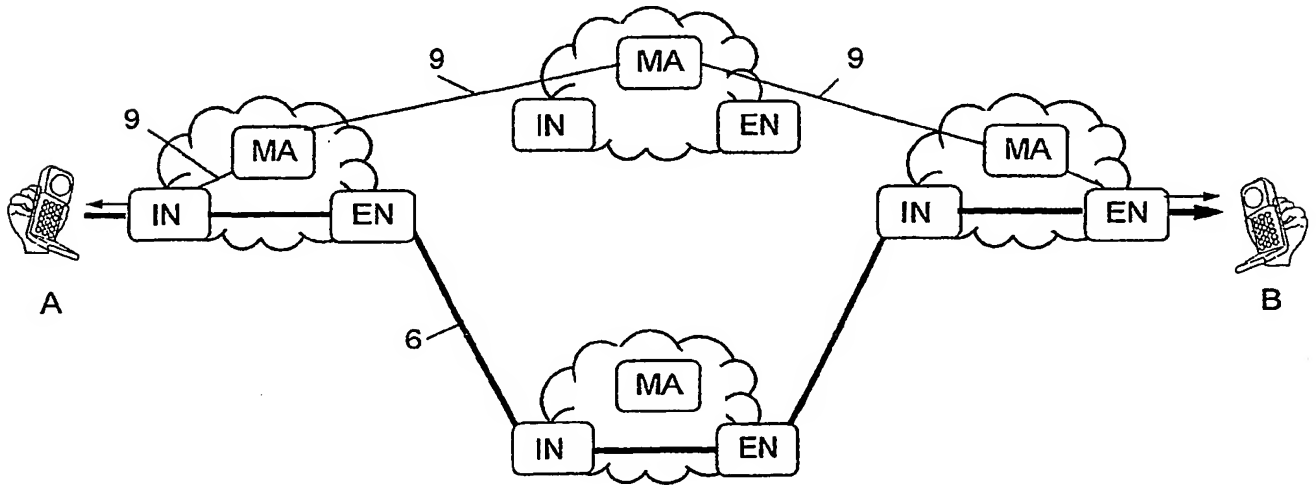
MA
IN
EN
9
9
9
6
A
B

FIG 6

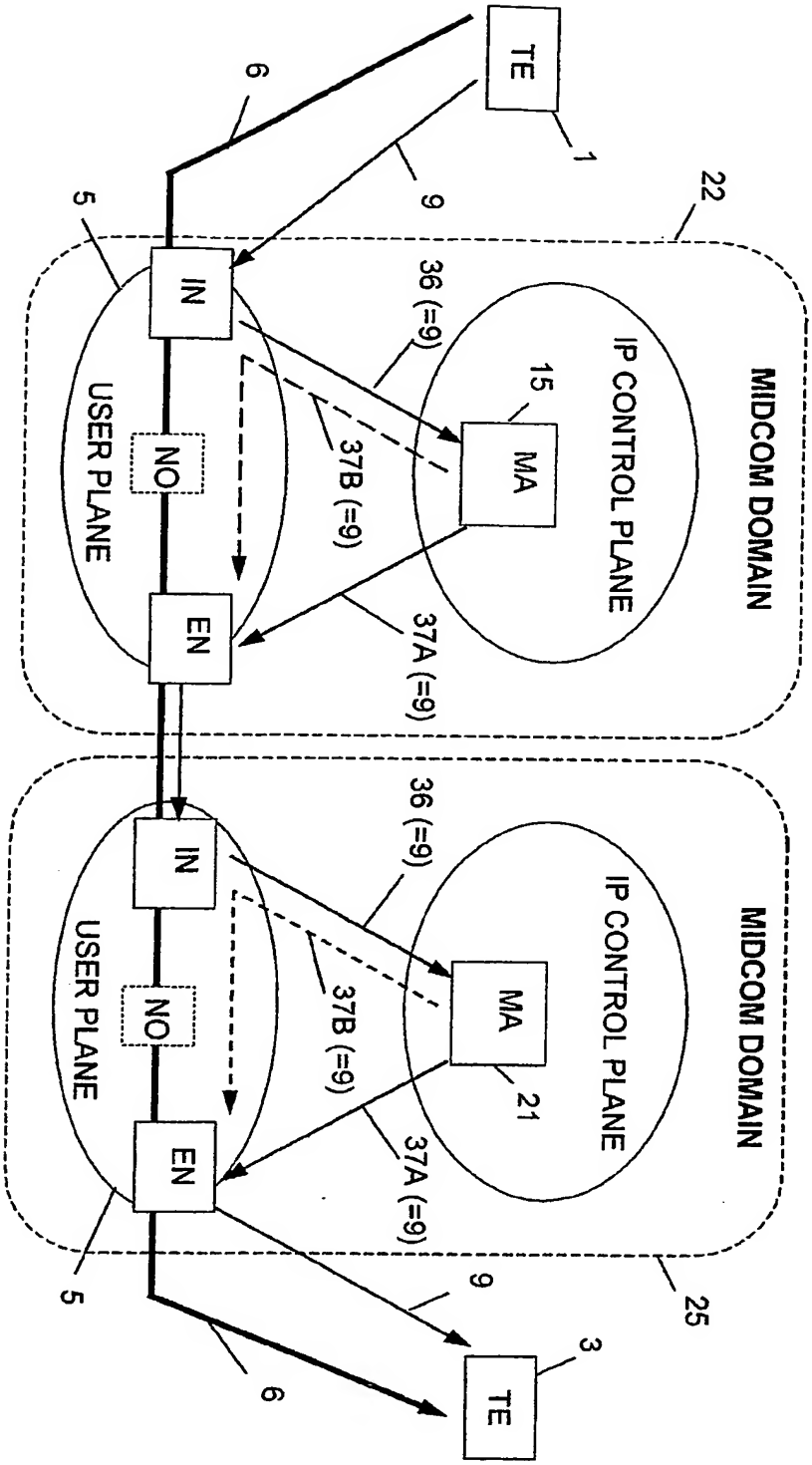
TE
1
6
9
22
5
IN
36 (=9)
IP CONTROL PLANE
15
MA
MIDCOM DOMAIN
USER PLANE
NO
37B (=9)
EN
37A (=9)
36 (=9)
IN
IP CONTROL PLANE
MA
21
MIDCOM DOMAIN
USER PLANE
NO
37B (=9)
EN
37A (=9)
5
9
25
3
6
TE

FIG 7

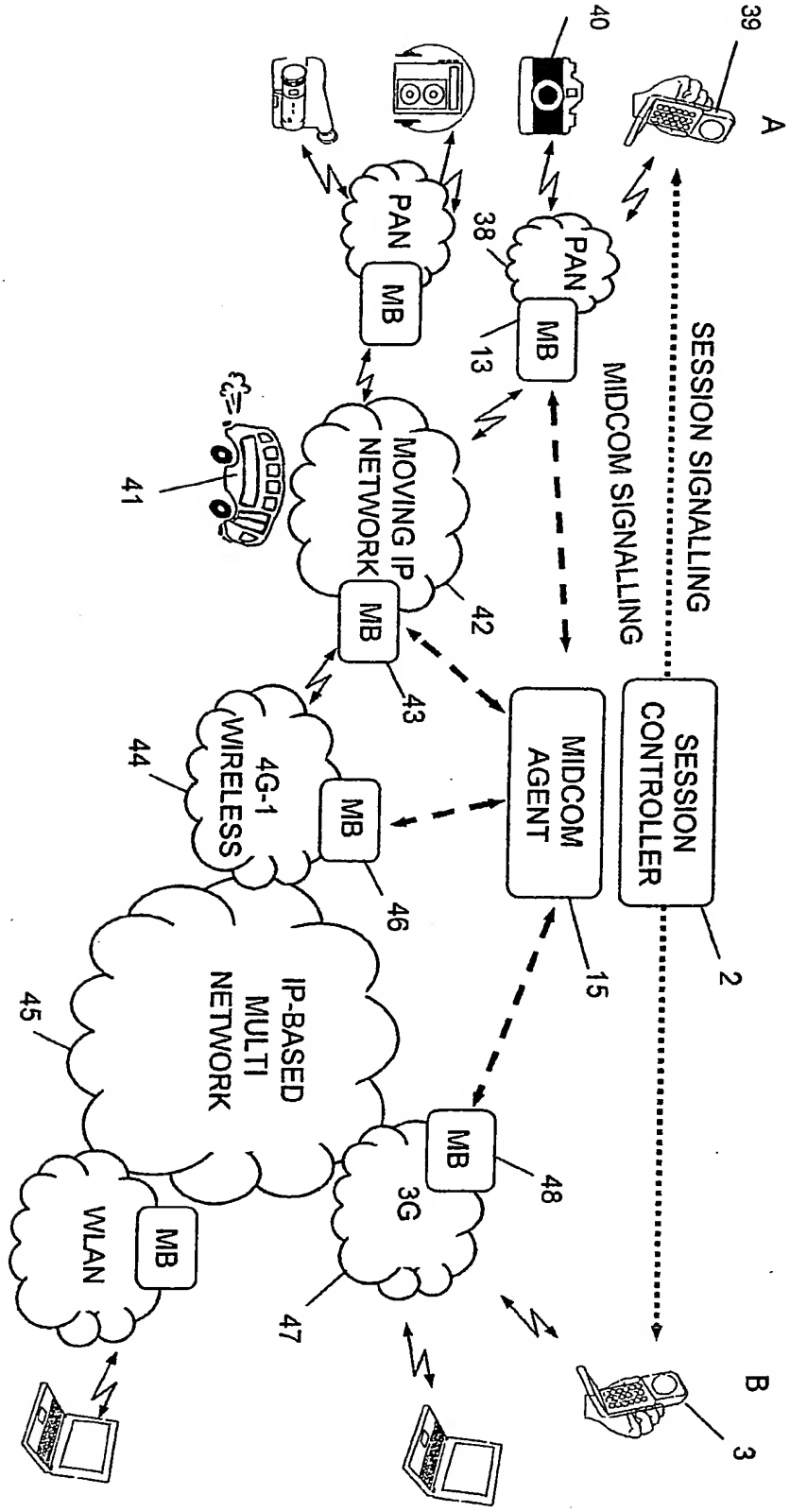
A
39
40
PAN
MB
38
13
SESSION SIGNALLING
MIDCOM SIGNALLING
PAN
MB
MOVING IP NETWORK
MB
41
42
43
SESSION CONTROLLER
2
MIDCOM AGENT
15
4G-1 WIRELESS
MB
44
46
IP-BASED MULTI NETWORK
45
MB
48
3G
WLAN
MB
47
B
3

FIG 8